

REMARKS:

The foregoing amendments rewrote claims 29 and 30; claim 29 was amended to depend on claim 27, and claim 30 was amended as an independent claim including the limitations of claim 27 from which it previously presented. The foregoing amendments simply rearrange limitations previously presented in applicant's claims and clarify what applicant already claimed. Since these amendments do not add any new limitations to applicant's claims, applicant respectfully requests the foregoing amendments be entered under 37 C.F.R. § 1.116(b) for the purposes of placing the application in condition of allowance or for the purposes of Appeal. Claims 27-30, 32-40, 44, and 49 remain in the application for consideration by the examiner.

The Office Action set forth a single prior art rejection of claims 27-30, 32-40 and 44-49 under 35 U.S.C. §103(a) as being unpatentable over Nakhmedov *et al.* (1975) (Koservanaya I Ovoshchesushil'naya Promyshlennost, hereinafter referred to as "Nakhmedov") in view of U.S. Patent No. 4,643,902 of Lawhon *et al.* ("Lawhon") and Laboratoires Chibret, British Patent Specification No. 1,007,751 ("British '751"). This rejection is similar to that set forth the previous Office action dated June 4, 2007. In the outstanding Office Action, a "Response to Arguments" was expanded on pages 6 to 10 thereof.

Applicant respectfully submits that the presently claimed invention is patentably distinguishable from the teachings of Lawhon, Nakhmedov, and British '751 for the reasons set forth in the previously filed responses, including the responses filed on September 29, 2006 and November 5, 2007, which are incorporated herein by reference. Applicant also submits that the invention defined in the present claims are patentable from the teachings of Lawhon, Nakhmedov, and British '751 for at least the following reasons.

The positions proffered in the outstanding Office Action under "Response to Arguments" and their locations in the Office Action are summarized below.

- (1) Office Action, page 6. *The response filed on November 5, 2007 incorrectly indicates that the amendments to the pending claims render instant claim 30 in independent form.*

Applicant's Response

In the foregoing amendments to the claims, claim 29 was amended to depend on claim 27, and claim 30 was amended as an independent claim including the limitations of claim 27 from which it previously presented.

- (2) Office Action, page 7. *Anthocyanin and monosaccharide content disclosed in Nakhmedov et al.; monosaccharide in applicant's invention; sugars can be monosaccharides, disaccharides and complex carbohydrates to infer that Nakhmedov teaches a sugar and not a monosaccharide; post filing date reference; and combination of references.*

Applicant's Response

*Anthocyanin and monosaccharide content disclosed in Nakhmedov et al.; monosaccharide in applicant's invention.* Applicant respectfully submits that the currently claimed invention is patentability distinct from Nakhmedov's composition for a coloring agent. Table 1 and 3 of Nakhmedov show the analytical data of colors from

black currant marc. Table 1 only reports on the content of anthocyanin in marcs, which is the meaning of Table 1. Table 3 of Nakhmedov reports on the content of several parameters of the coloring agent including sugar content of 16.1% and not free of monosaccharide (i.e., 0%) as currently defined in applicant's claimed invention. Table 3 of Nakhmedov also reports the parameters on a "molded" coloring agent, which cannot be compared with applicant's claimed composition since the "molded" composition is affected by bacteria. Furthermore, such a molded composition would not be considered a food composition (as presently claimed) by one of ordinary skill in the art.

Applicant's presently claimed invention is for a food composition, which does not contain monosaccharide. The Office Action misconstrued applicant's statement in the response filed on November 5, 2007 in a parenthetical statement reporting "low amounts of monosaccharides and organic acids," since "low" includes 0% as presently claimed. To remove any confusion, applicant maintains a patentable distinction between the presently claimed invention and the teachings of Nakhmedov in that Nakhmedov includes monosaccharide in the compositions proposed therein, while applicant's claims exclude the presence of monosaccharide.

The scheme presented as "Attachment 1" in applicant's response filed on November 5, 2007 showed the process of purifying a coloring agent proposed in Nakhmedov. In the process, the raw material is pressed and a part other than juice is used as pressed skin, which is usually treated as a waste, to purify the coloring agent. The pressed skin is divided into two parts. The anthocyanin content of the first part of the pressed skin is analyzed as the firstly pressed marc and the result is disclosed in Table 1

(Contents in marcs, of the first pressing). The second part of the pressed skin is further pressed and analyzed as the secondarily pressed marc and the result is disclosed in Table 1 (Content in marcs, of the second pressing). The firstly pressed marc and secondarily pressed marc are further treated to separate juice, and the coloring agent is extracted with hot water.

The anthocyanin content of the coloring agent from the firstly pressed mark is disclosed in Table 1 (Quantity of coloring agent produced from marc, of the first pressing). The anthocyanin content of the coloring agent from the secondarily pressed mark is also disclosed in Table 1 (Quantity of coloring agent produced from marc, of the second pressing). The result of detailed analysis including the content of monosaccharide and acidity of the coloring agent is disclosed in Table 3 -- this data is for the same marcs as in Table 1 of Nakhmedov. Thus, the teachings of Nakhmedov propose that the marcs proposed therein necessarily contain monosaccharides and organic acids, and therefore, these teachings cannot contemplate or suggest a composition not containing monosaccharides and organic acids, as presently claimed.

Applicant argued that the overall teachings of Nakhmedov must be considered. Table 1 of Nakhmedov was created only to show the information therein, such as only the anthocyanin and coloring agent content in marcs, and not to obscure this showing by providing additional information containing organic acids, monosaccharides, etc. Black currant necessarily contains organic acids and monosaccharides, as understood by any person skilled in the art and as taught by Nakhmedov. This is evidenced by applicant's (Hitoshi MATSUMOTO *et al.*) specification disclosure and cited prior art where the

organic acid and monosaccharide content of black currant berries are disclosed. In particular, the present application describes "Fresh juice just squeezed from black currant ... contains about 20 to 30% by weight of organic acids such as citric acid and malic acid on the basis of solid matters, and about 30 to 50% by weight of monosaccharide on the basis of solid matters" at lines 16 to 19 on page 1.

Table 3 of Nakhmedov shows supplemental information about the *same marcs* as Table 1 of Nakhmedov, such as organic acid and monosaccharide content. Table 3 of Nakhmedov clearly shows that colors from black currant marc necessarily contain  $16.1 \pm 0.7\%$  sugars. It would be understood by those skilled in the art that these sugars contain significant amount of monosaccharides.

*Sugars can be monosaccharides, disaccharides and complex carbohydrates to infer that Nakhmedov teaches a sugar and not a monosaccharide.* The Office Action alleged that the sugar content shown in Table 3 of Nakhmedov can be monosaccharides, disaccharides and complex carbohydrates and concluded that absent evidence to the contrary, Nakhmedov teaches a sugar, not a monosaccharide. However, from the above, applicant respectfully submits that any person skilled in this art would understand that the sugars shown in Table 3 of Nakhmedov necessarily contain a monosaccharide.

This conclusion is supported by the article attached as Attachment 2 to applicant's response dated November 5, 2007 by Boccorh *et al.* (hereinafter referred to as Boccorh), entitled *Factors influencing quantities of sugars and organic acids and blackcurrant concentrates* in Z Lebensm Unters Forsch A (1998) 206; 273-278, which disclosed the

sugar contents of black currant concentrate in Table 1 thereof. Table 1 of Attachment 2 clearly showed that the main sugars of black currant concentrate are fructose and glucose -- monosaccharides. See also, Attachment 3 to applicant's response filed on November 5, 2007, which was the article of Sanna Viljakainen (hereinafter referred to as Sanna), entitled *Reduction of Acidity in Northern Region Berry Juices* in ISBN 951-22-6435-8 (2003). From this information, those skilled in the art would understand that the composition of marcs disclosed in Table 1 of Nakhmedov must necessarily contain organic acids and monosaccharides, in contrast to the present claims.

Table 1 of Nakhmedov was created only to show limited information therein, such as only the anthocyanin and coloring agent content in marcs, and not to obscure this showing by providing additional information containing organic acids, monosaccharides, etc. Black currant necessarily contains organic acids and monosaccharides, as understood by any person skilled in the art and as taught by Nakhmedov. Table 3 of Nakhmedov shows *the same black currant marcs* have  $9.8 \pm 0.2\%$  of total acidity. Moreover, Attachment 3 filed with applicant's response dated November 5, 2007 by "Sanna Viljakainen, entitled *Reduction of Acidity in Northern Region Berry Juices* in ISBN 951-22-6435-8 (2003)," discusses that the main acids of black currant berry juices were invariably citric and malic acid. Furthermore, those skilled in the art understand that the total acidity means the content of organic acids, because Nakhmedov refers to the content of organic acids and sugars in the marc at the 9th line from the bottom on page 6 to the 6th line from the bottom on page 6 of the English translation of Nakhmedov, which was attached to applicant's response filed on April 23, 2004. From the above, applicant

respectfully submits that it is incontrovertible that the marcs in Table 1 of Nakhmedov necessarily contain amounts of organic acids in excess of that required in the present claims.

Applicant respectfully submits that it is impermissible within the framework of 35 U.S.C. §103 to select a single line or two of a reference (i.e., only Table 1 of Nakhmedov) in total disregard for the remaining teachings of the reference (i.e., Table 3 of Nakhmedov) and then rely upon the reference with the benefit of hindsight to show obviousness. *Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc.*, 230 U.S.P.Q. 416, 419 (CAFC 1986). It has long been held that it is impermissible within the framework of §103 to pick and choose from any one reference only so much of it as will support a given position to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one skilled in the art. *In re Wesslau*, 147 U.S.P.Q. 391, 393 (CCPA 1965); *In re Mercer*, 185 U.S.P.Q. 774, 778 (CCPA 1975). For these reasons, applicant respectfully submits that the teachings of Nakhmedov either alone or combined with Lawhon and British '751 cannot contemplate or suggest a composition containing a limited amount of organic acid and no monosaccharide, as presently claimed. Therefore, applicant respectfully requests that the examiner reconsider and withdraw the rejection of these claims over the teachings of Nakhmedov, Lawhon, and British '751.

None of the cited teachings contemplates or suggests the amount of delphinidin and delphinidin-3-O-rutinoside, required for example, in present claims 28 and 29, together with the other requirements of these claims. While the presence of delphinidin

or delphinidin-3-O-rutinoside may have been known in black currant, which the applicant does not admit, an important characteristic of the presently claimed invention is a composition containing a high content of delphinidin and delphinidin-3-O-rutinoside as a food composition (i.e., having low amounts of monosaccharides and organic acids). The teachings of Nakhemedov are concerned with obtaining a dye. In contrast, the presently claimed invention is directed to obtaining a food composition (substantially free of monosaccharide and having low content of organic acid). Therefore, applicant respectfully submits that the teachings of Nakhemedov can provide a person of ordinary skill in the art with no reason to obtain the presently claimed food composition. Furthermore, Nakhemedov never suggests the content of delphinidin-3-O-rutinoside, and therefore cannot contemplate or suggest the presently claimed amount of delphinidin-3-O-rutinoside, etc.

***Post filing date reference.*** The Office Action states that Sanna is a post filing date reference. Firstly, applicant respectfully submits that applicant's previous response filed on November 5, 2007 mainly pointed to the Boccorh article, dating back to 1998 and therefore a predated filing date reference, as evidence that the main sugar contents of black currant concentrate are fructose and glucose, which are monosaccharides. Secondly, the question of post or pre-dating is irrelevant in this situation since both references Boccorh and Sanna are simply used to describe the main sugar contents of black currant prior to applicant's invention.



From this information, those skilled in the art would understand that the composition of marcs disclosed in Table 1 of Nakhmedov must necessarily contain organic acids and monosaccharides, in contrast to the present claims.

For all these reasons, applicant respectfully submits that any person skilled in this art would understand that the marcs proposed by Nakhmedov must necessarily contain organic acids and monosaccharides, in contrast to the presently claimed invention. Therefore, applicant respectfully requests that the examiner reconsider and withdraw the rejection of the present claims over the teachings of Nakhmedov combined with Lawhon and British '751.

***Combination of references.*** The bottom paragraph of page 7 of the outstanding Office Action stated that one cannot show nonobviousness by attacking references individually where the rejections are based on combination of references. Applicant respectfully submits that applicant's response filed on November 5, 2007 argued the combined teachings of the references cited including Nakhmedov combined with Lawhon and British '751.

For example, items (4) to (6) discussed on pages 12 to 18 of applicant's response dated November 5, 2007, applicant's argued the combination of the teachings of Nakhmedov with Lawhon and British '751 to overcome objections cited in the Office Action dated June 4, 2007 related to: (4) *Product-by-process limitations and negatively charged membrane*, Office action page 4 bottom; (5) *Intended use*, Office action page 5, middle and bottom; and (6) *The references cannot properly be combined*. See

Applicant's Response filed on November 5, 2007, pages 12 to 18. Furthermore, see items (3) and (4) below that combine the teaching of cited references to show applicant's claimed invention as patently distinguishable from the cited prior art.

The teachings of Nakhmedov are not concerned with concentrating fruit juice. Namely, the teachings of Nakhmedov are directed to the production of coloring agent from marcs (waste) of black currant. The teachings of Nakhmedov never contemplate or suggest concentrating fruit juice, as presently claimed. An important aspect of the presently claimed invention is reducing the concentration of monosaccharide and organic acids in a composition made from black currant. The teachings of Nakhmedov never suggest the reduction of monosaccharide and organic acids. Therefore, the teachings of Nakhmedov can provide no reason to those skilled in the art to modify the process of Lawhon so as to arrive at the presently claimed composition that have specific amounts of anthocyanin, organic acid, and no monosaccharide.

Furthermore, the teachings of Nakhmedov never disclose or suggest the presently claimed composition. Similarly, the teachings of Lawhon never disclose or suggest the claimed process of the present application. The teachings of British '751 do not cure or rectify these deficiencies in the teachings of Nakhmedov and Lawhon. Accordingly, it is impossible for one of ordinary skill in the art to review the combined teachings of Lawhon, Nakhmedov, and British '751 and have a reason to prepare the compositions of applicant's claims. For at least this reason, applicant respectfully submits that the inventions defined in claims 27-30, 32-40, 44, and 49 are patently distinguishable from the combined teachings of Lawhon, Nakhmedov, and British '751 within the meaning of

35 U.S.C. §103. Therefore, applicant respectfully requests that the examiner reconsider and withdraw this rejection.

In summary, the Office Action apparently took the position that Nakhmedov teaches the amounts of solids left from processing black currant berries, as proposed therein, and combining this knowledge with the process as proposed by Lawhon will lead to applicant's claimed invention. However, as explained above, even if one of ordinary skill in the art did this, the teachings of Nakhmedov provide no reason to one of ordinary skill in the art to modify the process proposed by Lawhon so as to arrive at the presently claimed compositions that have specific amounts of anthocyanin, organic acid, and no monosaccharide. For at least these reasons, applicant respectfully submits that the inventions defined in claims 27-30, 32-40, 44, and 49 are patently distinguishable from the combined teachings of Lawhon, Nakhmedov, and British '751 within the meaning of 35 U.S.C. §103.

For at least the foregoing reasons and for the reasons set forth in the previously filed responses, applicant respectfully submits that the present claims are patently distinguishable from the teachings of Lawhon, Nakhmedov, and/or British '751 within the meaning of 35 U.S.C. §102 or 35 U.S.C. §103. Therefore, applicant respectfully requests that the examiner reconsider and withdraw the rejection of all the pending claims in this application over these teachings, and formally allow claims 27-30, 32-40, 44, and 49.

- (3) Office Action, page 8-9. *Intended Use; and Product-by-process limitations and negatively charged membrane.*

Applicant's Response

*Intended Use.* Page 9 of the response filed on September 29, 2006, which remarks are incorporated herein by reference, explained why the teachings of Nakhmedov cannot disclose or suggest the inventions defined in, for example, claim 27 that are directed to "A black currant anthocyanin-containing *food composition suitable for human consumption.*" The Office Action provided no reasons why the arguments provided in the response are not correct, but simply stated that the marcs of Nakhmedov are capable performing the intended use of the present claims. Applicant respectfully submits that this position is incorrect for least the following reasons.

The teachings of Lawhon are not concerned with concentrating black currant juices and the methods proposed therein cannot obtain a composition having anthocyanin, organic acid and monosaccharide concentrations as presently claimed. As discussed above, the teachings of Nakhmedov are concerned with preparing a coloring agent. Since the teachings of Lawhon and Nakhmedov have nothing to do with a "black currant anthocyanin-containing *food composition suitable for human consumption,*" and, in fact, teach away from such a composition, applicant respectfully submits that these teachings either alone or combined with other teachings cannot provide any reason to one of ordinary skill in the art prepare a "black currant anthocyanin-containing *food composition suitable for human consumption,*" as presently claimed.

With respect to present claims 35 and 36, the presently claimed food or drink includes the black currant anthocyanin-containing food composition according to claim 27. As explained above, the black currant anthocyanin-containing food composition according to claim 27 has structural differences from the prior art. For at least this reason, the presently claimed food or drink of claims 35 and 36 is patently distinguishable from the prior art.

Concerning present claims 37 to 40, the claimed black currant anthocyanin-containing food composition according to claim 27. Claims 37 and 39 that depend on claim 27 are directed to a food composition. As mentioned above, the claimed composition of claim 27 is different from the composition disclosed in Nakhmedov, Lawhon, and British '751. For at least this reason, the presently claimed food or drink of claims 37 and 39 is patently distinguishable from the prior art.

Present claims 38 and 40 depend on claim 35, which depends on claim 27, and are directed to a food or drink. As mentioned above, the claimed composition of claim 27 is different from the composition disclosed in Nakhmedov, Lawhon, and British '751. For at least this reason, the presently claimed food or drink of claims 38 and 40 is patently distinguishable from the prior art.

Furthermore, the food composition of present claims 37 and 39, and the food or drink of present claims 38 and 40 contain anthocyanin amount that accomplishes the properties recited in each claim. That is, the properties recited in present claims 37 to 40 patently distinguish the claimed composition and food or drink from the different composition proposed by Nakhmedov, Lawhon, and British '751. For least this reason,

the presently claimed food compositions of claims 37 and 39 and foods or drinks of claims 38 and 40 are clearly different from the composition disclosed in Nakhmedov, Lawhon, and British '751.

***Product-by-process limitations and negatively charged membrane.*** Present claims 30, 32, 33, and 34 are not product-by-process claims, but rather are process claims.

Accordingly, the comments in the Office Action concerning product-by-process claims are not pertinent to these claims. Applicant respectfully submits that claims 30, 32, 33, and 34 are patently distinguishable from the teachings of Nakhmedov, Lawhon, and British '751 within the meaning of 35 U.S.C. §103 for the reasons set forth in the previously filed responses and for at least the following reasons.

The foregoing amendments rewrote claim 30 as an independent claim including the limitations of claim 27. For example, claim 30 was amended to define a composition comprising 5 to 25% by weight of black currant anthocyanin and an organic acid content of not more than 5% by weight on the basis of solid matters, and monosaccharide is not found.

In the response filed on November 5, 2007, which is incorporated herein by reference, applicant argued that the teachings of Lawhon propose the purification and concentration of juice by using a reverse osmosis membrane. In the process disclosed in Lawhon using reverse osmosis (RO) membrane, sugars and acids are fractionated in a RO retentate together with anthocyanin. In contrast thereto, the membrane used for the presently claimed invention is a *negatively charged* reverse osmosis membrane. In the

process of the presently claimed invention using the *negatively charged* RO membrane, anthocyanin is fractionated in a retentate however sugars and acids are separately fractionated in a permeate -- an arrangement opposite to that proposed by Lawhon.

The RO membrane, such as proposed by Lawhon, was developed for desalinating seawater to obtain fresh water. The RO membrane is placed between seawater and fresh water. When a pressure higher than the pressure of osmotic pressure is applied to seawater, water in the seawater is moved to the fresh water through the RO membrane. Since the retention rate of NaCl of the RO membrane is more than 99%, fresh water can be obtained by using the RO membrane. In contrast thereto, the charged RO membrane was developed separately from the RO membrane as a nanofilter (or a loose RO membrane). The size of a substance removed by the charged RO membrane is between that of the RO membrane and ultrafiltration (UF) membrane. That is, the charged RO membrane operates and functions differently from a RO membrane as a filter, as understood by those skilled in the art.

Therefore, the teachings of Lawhon cannot possibly provide a reason to one of ordinary skill in the art to use a process proposed therein in combination with a negatively charged reverse osmosis membrane, as required in present claim 30. The teachings of Nakhmedov and British '751 do not cure or rectify this deficiency in the teachings of Lawhon. At least for these reasons, applicant respectfully submits that the invention defined in independent process claim 30 and the claims that depend thereon are patently distinguishable from the teachings of Nakhmedov, Lawhon, and British '751.

Therefore, applicant respectfully requests that the examiner reconsider and withdraw the rejection of claims 30, 32, 33, and 34 that was set forth in the outstanding Office action.

Claim 44 is a product-by-process claim. Applicant respectfully submits that the present specification disclosure establishes the importance and significance of the method steps set forth in claim 44, and moreover, establishes that the product resulting from the product-by-process steps set forth therein results in a patently distinguishable product. Namely, in the presently claimed invention, the organic acids content can be reduced without using an ion exchange column.

Example 1 of the present application shows that the use of the negatively charged reverse osmosis membrane itself accomplished the reduction of organic acids and the deletion of monosaccharide. As shown in Example 2 of the present application, the ion exchange column was used to increase anthocyanin content, not to reduce the organic acids content. These examples show the differences between the use of a negatively charged reverse osmosis membrane and an ion exchange column, especially with respect to the presently claimed invention, and that they cannot be interchangeably used to arrive at the compositions defined in the present claims.

For such reasons, applicant respectfully submits that the invention defined in claim 44 is patently distinguishable from the teachings of Nakhmedov, Lawhon, and British '751. Therefore, applicant respectfully requests that the examiner reconsider and withdraw the prior art rejection set forth in the outstanding Office action.



In summary, the Office Action apparently took the position that Nakhmedov teaches the amounts of solids left from processing black currant berries, as proposed therein, and combining this knowledge with the process as proposed by Lawhon will lead to applicant's claimed invention. However, as explained above, even if one of ordinary skill in the art did this, the teachings of Nakhmedov provide no reason to one of ordinary skill in the art to modify the process proposed by Lawhon so as to arrive at the presently claimed compositions that have specific amounts of anthocyanin, organic acid, and no monosaccharide. For at least these reasons, applicant respectfully submits that the inventions defined in claims 27-30, 32-40, 44, and 49 are patently distinguishable from the combined teachings of Lawhon, Nakhmedov, and British '751 within the meaning of 35 U.S.C. §103.

For at least the foregoing reasons and for the reasons set forth in the previously filed responses, applicant respectfully submits that the present claims are patently distinguishable from the teachings of Lawhon, Nakhmedov, and/or British '751 within the meaning of 35 U.S.C. §102 or 35 U.S.C. §103. Therefore, applicant respectfully requests that the examiner reconsider and withdraw the rejection of all the pending claims in this application over these teachings, and formally allow claims 27-30, 32-40, 44, and 49.

The present response is believed to be a complete and proper response to the final Office Action mailed on March 11, 2008. While it is believed that the present application is in condition for allowance, should the examiner have any comments or questions, it is respectfully requested that the undersigned be telephoned at the below listed number to resolve any outstanding issues.

In the event that this paper is not timely filed, applicant hereby petitions for an appropriate extension of time. The Commissioner is hereby authorized to charge the fee therefor, as well as any deficiency in the payment of the required fee(s) or credit any overpayment, to our Deposit Account No. 50-1147

Respectfully submitted,

/David G. Posz/  
David G. Posz  
Registration No. 37,701

Atty. Docket No. VX012397 PCT  
POSZ LAW GROUP, PLC  
12040 South Lakes Drive, Suite 101  
Reston, Virginia 20191  
Tel: (703) 707-9110  
Fax: (703) 707-9112

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